In the Claims:

Please cancel claims 30, 34, 40, 43 and 50 without prejudice or disclaimer.

Please amend the claims to read as follows:

1. (Currently Amended) A process for selectively amplifying nucleic acid

sequences comprising contacting multiple single stranded non-circular random

oligonucleotide primers (P1), one or more amplification target circles (ATCs), a DNA

polymerase and multiple deoxynucleoside triphosphates (dNTP), under conditions

promoting said contacting, wherein an ATC hybridizes to a plurality of said P1

primers, wherein said conditions promote replication of the amplification target

circle by extension of the P1 primers to form multiple tandem sequence DNA (TS-

DNA) products and wherein said dNTPs are selected from the group consisting of

dTTP, dCTP, dATP, dGTP, dUTP, a naturally occurring dNTP different from the

foregoing, an analog of a dNTP, and a dNTP having a universal base and wherein at

least one such dNTP renders the TS-DNA resistant to nuclease activity following

incorporation thereinto.

2-4 (Canceled)

5. (Original) The process of claim 1 wherein said multiple primers are within the

range of 2 to 50 nucleotides in length.

6. (Original) The process of claim 1 wherein said multiple primers are within the

range of 2 to 35 nucleotides in length.

7. (Original) The process of claim 1 wherein said multiple primers are within the

range of 2 to 10 nucleotides in length.

- 8. (Original) The process of claim 1 wherein said multiple primers are hexamers.
- 9. (Original) The process of claim 1 wherein said multiple primers are octamers.
- 10. (Canceled)
- 11. (Original) The process of claim 1 wherein said ATC is a single stranded DNA circle.
- 12. (Original) The process of claim 1 wherein said ATC is a duplex DNA circle having at least one nick.
- 13. (Original) The process of claim 1 wherein said ATC is a duplex DNA circle having no nicks.
- 14. (Original) The process of claim 1 wherein said ATC is a single stranded RNA circle.
- 15. (Original) The processes of claim 12 or claim 13 further comprising a denaturation step to separate the two strands of the duplex DNA circle.
 - 16-19. (Canceled)
- 20. (Original) The process of claim 1 wherein said ATC is no larger than about 10,000 nucleotides in size.
- 21. (Original) The process of claim 1 wherein said ATC is larger than 10,000 nucleotides in size.

22. (Original) The process of claim 1 wherein said ATC is no larger than about

1,000 nucleotides in size.

23. (Original) The process of claim 1 wherein said ATC is no larger than about

100 nucleotides in size.

24. (Original) The method of claim 1 wherein the amplification target circle

comprises a single stranded bacteriophage DNA, a double stranded DNA plasmid or

other vector, or a clone derived from such a vector.

25. (Original) The method of claim 1 wherein the amplification target circle to be

amplified is of unknown sequence composition.

26. (Canceled)

27. (Previously Presented) The process of claim 1 wherein at least one said dNTP

is radiolabeled.

28. (Canceled)

29. (Currently Amended) The process of claim 1 wherein said at least one

nucleotide said dNTP is a phosphorothicate nucleotide.

30. (Canceled)

31. (Previously Presented) The process of claim 1 wherein said nuclease

activity is due to an exonuclease.

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32. (Original) The process of claim 31 wherein said exonuclease activity is due to

a polymerase having a 3'-5' exonuclease activity.

33. (Original) The process of claim 31 wherein said exonuclease activity is due to

an added exonuclease enzyme.

34. (Canceled)

35. (Previously Presented) The process of claim 1 wherein said at least one

nucleotide is a modified nucleotide.

36. (Original) The process of claim 1 wherein at least one P1 primer is attached

to a solid support.

37. (Original) The process of claim 36 wherein said solid support is made of

glass or plastic.

38. (Original) The process of claim 1 wherein said multiple primers are selected

from the group consisting of primers resistant to exonuclease activity, primers not

resistant to exonuclease activity and a mixture of primers sensitive to exonuclease

activity and resistant to exonuclease activity.

39. (Previously Presented) The process of claim 1 wherein said multiple primers

are resistant to exonuclease activity.

40. (Canceled)

41. (Original) The process of claim 38 wherein said exonuclease activity is

caused by a 3'-5'-exonuclease.

42. (Original) The process of claim 38 wherein said exonuclease activity is caused by a DNA polymerase having 3'-5'-exonuclease activity.

43. (Canceled)

- 44. (Original) The process of claim 38 wherein each of said exonucleaseresistant primers contains at least one nucleotide making said primer resistant to exonuclease activity.
- 45. (Original) The process of claim 44 wherein said at least one nucleotide is a modified nucleotide.
- 46. (Original) The process of claim 45 wherein said modified nucleotide is a 3'-terminal nucleotide.
- 47. (Original) The process of claim 46 wherein said modified nucleotide is a phosphorothioate nucleotide.
- 48. (Original) The process of claim 44 wherein each of said exonucleaseresistant primers contains at least two nucleotides making said primer resistant to exonuclease activity.
- 49. (Original) The process of claim 35 wherein said at least one nucleotide is located at other than the 3'-terminal position.

50. (Canceled)

51. (Original) The process of claim 1 wherein said DNA polymerase is a DNA polymerase having 3',5'-exonuclease activity and is a member selected from the group consisting of bacteriophage φ29 DNA polymerase, Tts DNA polymerase, phage M2 DNA

polymerase, VENT™ DNA polymerase, Klenow fragment of DNA polymerase I, T5

DNA polymerase, PRD1 DNA polymerase, T4 DNA polymerase holoenzyme, T7 native

polymerase and Bst DNA polymerase.

52. (Original) The process of claim 1 wherein said DNA polymerase is

bacteriophage \$429 DNA polymerase.

53. (Original) The process of claim 1 wherein said DNA polymerase is

bacteriophage φ-29 DNA polymerase and said multiple primers are resistant to

exonuclease activity.

54. (Previously Presented) The process of claim 1 wherein said DNA polymerase

is bacteriophage \$429 DNA polymerase wherein said multiple primers are resistant to

exonuclease activity.

55. (Original) The process of claim 1 wherein said DNA polymerase does not

exhibit 3',5'-exonuclease activity.

56. (Currently Amended) The process of claim 55 wherein said DNA

polymerase is selected from the group consisting of DNA polymerases lacking a 3'-

5' exenuclease activity, such as Tag, Tfl, and Tth DNA polymerase, and Eukaryotic

DNA polymerase alpha, and DNA polymerases that have been modified to eliminate

a 3'-5' exenuclease activity selected from the group consisting of the exe (-)

versions of \$29 DNA polymerase, Klenow fragment, Vent and Pfu DNA

polymerases.

57. (Original) The process of claim 1 wherein said DNA polymerase is a reverse

transcriptase.

58. (Original) The process of claim 1 wherein said ATC is RNA and said DNA polymerase is a reverse transcriptase.

59. (Previously Presented) The process of claim 38 wherein said multiple primers are a mixture of primers sensitive to exonuclease activity and resistant to exonuclease activity.

60. (Canceled)

61. (Previously Presented) The process of claim 56 wherein said DNA polymerase is φ29 DNA polymerase.

62-68. (Canceled)